

will cut a board 3½ feet wide, while as now arranged, a 4-foot saw will hardly cut 1½ foot. It is also arranged so that it will cut when the carriage is going either way, and will, at the same time, saw nearly twice as fast.

The *Journal of the Franklin Institute of Pennsylvania* reports, amongst many other recent patents, one for an improvement in planing machines, by Nicholas G. Norcross, Lowell, Massachusetts, who claims,—"When placed so as to operate on one side of a board, a cylindrical, rotary cutter, for roughing and reducing, which cuts from the unplanned to the planed surface, in combination with a stationary cutter, placed behind, and as near thereto as may be, for finishing without pressure rollers or pressure bars of any kind, whereby I am enabled to operate with greatly diminished power, and the rotary cutter will cut up and throw off the shavings from the stationary cutter, and the boards will be reduced to an equal thickness and a smooth surface;" and another for improved wrought nail machinery, by Daniel Dodge, Keeseville, New York, who describes his invention as "such a combination and arrangement of the cutter, grippers, and hammers, that when a rod of suitable dimensions is introduced into the machine, a piece of sufficient length to form a nail will be cut off, caught into grippers, and passed under a series of hammers, receiving one stroke from each, as it progresses, and revolving during its transition, from one hammer to another, so that its different sides may be acted on alternately, until it has passed the entire series, and is reduced to the requisite size and form, after which it is discharged." His claims are too lengthened and numerous for us to detail.

METROPOLIS BUILDINGS ACT.

In consequence of a recent decision of the official referees, a circular has been issued by several of the district surveyors, announcing that henceforth it will not be permitted to leave openings in new buildings preparatory to additions being erected, which it is well known has been the custom since the Act came into force. The wisdom of this direction is very questionable.

The great anomaly and injustice of the Building Act, in reference to additions, as they are commonly called, to our suburban houses, is now coming to the test. The referees say it is not lawful to build and leave openings to join on the additions, as we have done hitherto. This decision points attention to the great injustice of the principle that has been hitherto endured. The district surveyors have reaped a rich harvest by the small areas permitted by the statute. It is notorious that the gross amount of fees paid on fourth-rate houses exceeds any other, both in rate per cent. on the cost, and aggregate amount of fees.

There have been a good many abortive efforts to produce an amended Building Act. When the measure is to be carried through is still doubtful. The building interest has two active representatives in the House of Commons (Alderman Cubitt and Mr. Peto). They would add to their laurels, and confer a lasting benefit on the metropolitan community, if they would apply themselves to the question of a practical and simple Building Act. X. Y.

We have received the following from a correspondent:—

Hiscocks v. Meears.—This was a summons before Mr. Paynter, at the Wandsworth Police-court, at the instance of the district surveyor for Wandsworth and Tooting, charging the defendant with having stripped, tipped, uncovered, and reconstructed and recovered the roofs of two buildings in Love-lane, Wandsworth, by which he, the complainant, became entitled to receive from the defendant two certain fees, amounting together to 2l. 10s. which the defendant refused to pay. The complainant proceeded to give evidence in support of his claim, and referred the magistrate to schedules G and L of the Metropolitan Buildings Act, and to the fees in schedule L, under the head, "Fee for additions or alterations," on which he relied.

Mr. Haynes, solicitor, of Wandsworth, who appeared for the defendant, having elicited on the cross-examination of the complainant, that the roof was not altered in its construction, nor had any addition been made to it, except that it had undergone some necessary repairs, and the defective covering had been reinstated with new materials, contended that the summons must be dismissed, the complainant having failed to establish his claim. That the work done being simply repairs, did not involve the fees as charged under the schedules of the Act referred to, and relied on by the complainant, such being fees for and in respect of "additions or alterations;" and it could not be said that the work done by the defendant being admitted to be repairs, came within the common acceptance and meaning of the words addition or alteration. The magistrate agreeing on this view, dismissed the summons.

THE DRAINAGE OF SHERBORNE, DORSET.

THE Local Board of Health have recently accepted the tender of Mr. John Grant, of Exeter, for their sewerage works. Messrs. Doulton and Co. will supply the stoneware pipes, and Mr. Spittle, of the Pentwyn Foundry, near Pontypool, is to furnish cast-iron water-pipes. Messrs. Dymond and Sons, of Exeter, have been entrusted with the design and superintendence of the combined works. These include a new system of stoneware-pipe drains for the entire town, the largest sewer being 18 inches in diameter. The outfall will be into the River Yeal, at a point about half a mile below the town, where the sewage-water may hereafter be applied to the irrigation of a large tract of meadow land. The chief of the existing sewers (of which there are but few) will be retained as channels for the relief of the pipe-sewers in times of extraordinary rainfall. Concurrently with the drainage, a system of water-supply on the "constant and unlimited" plan will be carried out. The water is to be obtained by driving a long heading about 30 feet below the surface, so as to intercept the rainfall which finds its way over an impervious rocky bed from a very extensive area to the head of a narrow "coombe" or valley, situated about a mile above the town. The sandy stratum resting on this impervious mass forms a natural storage reservoir, from which the water is to be conducted in stoneware pipes, laid at a gentle inclination along the hill sides, to a small reservoir placed at a sufficient height above the town, to obtain a pressure which will deliver the water considerably above the roofs of the highest houses.

THE WATER QUESTION.

REPORTS on microscopic examinations of water supplied to the metropolis from various sources have been made by Mr. Edwin Lankester, M.D., F.R.S. and by Mr. Peter Redfern, M.D., F.R.C.S.L. at the request of the directors of the London (Watford) Spring-Water Company; of course with the view of showing off the superior purity and excellence of the water in which they are interested, but at the same time containing, we doubt not, a truthful enough account of the abominations which the metropolitan public are doomed to drink. The reports have been printed, and they contain sufficiently horrifying minutiae and details in the form of numerous engravings. A chemical report on chalk-spring water, by Dr. Thomas Clark, of Aberdeen, and Dr. John Smith, both collegiate professors of chemistry, is added. In a table appended to Dr. Redfern's report it is stated that after standing for one or two days, in May last, water from the New River had fifty living animals visible to the naked eye in each quart; water from the West Middlesex had flocculi of organic matter in suspension; water from Thames Ditton had patches of organic matter in suspension; water from the Grand Junction contained several animals visible to the naked eye. The visible vermin, however, constitute but a very small proportion to the invisible or microscopic. The report of Dr. Lankester fully corroborates that of Dr. Redfern as to

the contamination of the metropolitan waters. From a table appended to the report of the former it appears that in New River water no less than forty different species of living creatures, such as infusoria, rotifers, and other forms of animal life, with conserva and other forms of vegetable growths were found; in the Thames Ditton or Lambeth, 38; in the Chiswick or West Middlesex, 41; and in the Grand Junction, 19. The palliative adopted by Parliament of a future supply from the Thames above Teddington lock is shown from these tables to be a very unsatisfactory one, the Thames thence yielding at all times a water much contaminated with organic matter; as indeed might have been at once concluded from the fact that it still contains the disembovement of the sewers and drains of 100 villages and towns, and the surface drainage of the most richly manured country in the world.

A NEW MODE OF BUILDING.

SIR,—For building houses we propose a brick of 12 inches by 12 inches, 5 inches thick, and hollow inside. Along the longitudinal sides (12 by 5) a little groove or cut ½ inch deep and 1 inch at the bottom, ½ inch near the surface, is to be fitted with a peg or a little brick 14 inches long, exactly corresponding with the shape of the two grooves when they are closed against each other. As for corners, the same bricks will be necessary, with this difference only, that one arm will be 12 inches by 12 and another 12 inches by 6, joined rectangularly at the corner.

Now, the concrete bottom being made level and sufficiently dry, we put some mortar on it, and place the hollow bricks perpendicularly close to each other, allowing as little mortar between the crevices as possible, and joining them with the said peg, thrusting it from the top into the grooves, having immersed it first into mortar. And proceeding in the same way we shall finish the first round, leaving a place for the door. The bricks standing now upright, we propose to fill with sifted ashes and press well.

The second layer, or row, we begin in the same way with the corner brick, placing it alternately, shorter arm on longer below, and longer on shorter, and the row filling without bricks turned with narrower faces horizontally, the grooves which now will be at the top, joining with the said clay pegs, thrusting them in by the end, and leaving at the middle 2 inches, just for the reception of the higher row, which will be perpendicular.

Proceeding continually in the same way we shall have a house rising 12 inches at a time, with an appearance of stone—less joints and less mortar—but more strength; and if the inner apertures in the bricks are filled with ashes, it will be warm in winter, cool in summer, safe in the accident of fire in the neighbourhood, and dry in every season.

DOORWAY IN ANTWERP.

THE accompanying engraving represents the doorway of a house in the Rue de l'Empereur, Antwerp. It is made from a sketch on the spot by Mr. Martineau, to whose portfolio we have been indebted before. The mouldings shown below are referred to by letters on the view.

PARAPET FROM THE DUOMO, FLORENCE.

THIS is either the design of Giotto (who succeeded Arnolfo, on the latter's death, in 1300), or of his pupil and godson, Taddeo Gaddi. The material for the main part is white marble, but inlaid with black, green, and red, the patterns of some of the circular panels between the macciolis being of beautiful design. Nowhere is the link between painting and architecture more close than in the Cathedral of Florence, and many are the lessons in architectural polychromy that a careful study of it teaches. G. T. R.